Internal deliberative pre-decisional

US. DOE – OAK RIDGE RESERVATION

OAK RIDGE, TENNESSEE - REGION 4

ISSUE SUMMARY:

The Environmental Management Waste Management Facility (EMWMF) is an operating CERCLA landfill used to dispose of radiological, toxic, hazardous and mixed waste from cleanup of the Oak Ridge Reservation Superfund Federal Facilities Site in Oak Ridge, TN. EMWMF operations began in 2002; the facility will reach capacity in 2-5 years. Discharge of wastewater containing radionuclides and chemicals from the EMWMF into Bear Creek, and similar wastewater discharge issues for EMWMF's replacement facility (Environmental Management Disposal Facility (EMDF)), were the subject of a Federal Facility Agreement (FFA) formal dispute, recently resolved by the EPA Administrator Andrew Wheeler's 12/31/2020 decision. Since the EPA Superfund Federal Facilities program was established following the 1986 Superfund Amendments and Reauthorization Act, only 11 formal disputes have been elevated to the EPA Administrator for resolution (see the *Federal Facilities Restoration and Reuse Office (FFRRO) Transition Paper* for more information on Federal Facilities disputes). In addition, EPA, the state and DOE are resolving groundwater characterization issues to support EMDF landfill siting and Toxic Substances Control Act and TN Department of Radiological Health waivers in an upcoming $537M CERCLA Record of Decision (ROD) and landfill design.

UPCOMING MILESTONES:

January-March 2021 – Develop strategy to comply with state anti-degradation regulations for mercury discharges to Bear Creek in support of upcoming ROD for the proposed EMDF landfill.

During 2021 - Implement the EPA Administrator's 12/31/2020 dispute decision on wastewater effluent discharge limits for radionuclides into surface water for both the existing and planned landfills.

July 2021 – DOE submittal of the draft ROD for the $537M EMDF.

Fall 2021 -- Incorporate the referenced dispute decision into the EMWMF ROD and Focused Feasibility Study.

Fall 2021 –EPA Administrator briefing on the EMDF and EMWMF RODs. Consistent with EPA's current delegation of authority for CERCLA remedial action decisions, the Administrator signs CERCLA decision where the estimated cost of the action exceeds $50M.

BACKGROUND:

The Oak Ridge Reservation (ORR), constructed in the 1940s, enriched uranium for nuclear weapons during the Manhattan Project and the Cold War. ORR lies within Oak Ridge, Tennessee's city limits (in Roane and Anderson counties) and is included in the Manhattan Project National Historical Park. Today the 32,400-acre reservation consists of three major campuses (East Tennessee Technology Park [ETTP], Oak Ridge National Laboratory [ORNL], and the Y-12 National Security Complex). While nuclear weapons operations ceased in the

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1980s, research and nuclear security operations continue at ORNL and the Y-12 complex. In 1989, EPA placed ORR on the Superfund National Priorities List. EPA Region 4 (Atlanta) and the Tennessee Department of Environment and Conservation (TDEC) oversee the cleanup, while the DOE Office of Environmental Management (EM) is the lead federal agency responsible for CERCLA implementation. EPA, DOE and TDEC signed a Federal Facility Agreement (FFA) in 1991; it governs the CERCLA cleanup and defines the three parties' roles. The FY21 enacted budget for ORR EM is $475.4M, including over $400 for CERCLA cleanup actions. ORR is a large, highly complex site; DOE estimates cleanup completion in 2047.

The site contains 100s of contaminated areas; to date, 54 operable units have been identified to manage the site's cleanup. Cleanup projects, using CERCLA authority, are prioritized to address contamination that poses an imminent threat to human health, to control and clean up contaminants that have migrated off site, and to respond to redevelopment and reuse plans.

***East Tennessee Technology Park* (2,200 acres)**

- Cleanup began in the 1990s and all buildings (approximately 500) were demolished. Most soil contamination has been remediated. Groundwater remediation has not commenced due to the ongoing groundwater contamination feasibility study. [non-public info: EPA has been unhappy with the lack of DOE progress on ETTP groundwater and is concerned over inadequate characterization and lack of a groundwater exit strategy compatible with future land use. EPA has explored development of an Adaptive Management strategy for ETTP with DOE and TDEC; to date the parties continue to seek agreement on a path forward for groundwater restoration.]
- The future land use is envisioned as a private industrial park. To date, 1,300 acres, including 14 buildings, have been transferred to the Community Reuse Organization of East Tennessee, following EPA and state review, and are available for industrial/commercial re-use with some limitations. A conservation easement of approximately 3,000 acres surrounds the ETTP CERCLA decision area.

***Oak Ridge National Laboratory* (4,400 acres)**

- ORNL developed radioisotopes during the Manhattan Project, including building and operating 13 reactors. Today, it is a national laboratory and operates the world's oldest active nuclear facility.
- Cleanup is focused on removal and final disposal of 120 deteriorating, contaminated former reactor and isotope production facilities. Cleanup will support modernization of national laboratory facilities.

***Y-12 National Security Complex* (811 acres)**

- Current operations include nuclear nonproliferation, weapons disassembly, nuclear stockpile maintenance and U.S. naval nuclear fuel production. Historically, the Y-12 complex enriched uranium for atomic weapons using mercury in the separation and enrichment of lithium isotopes, resulting in the release of more than 1M pounds of mercury into the environment.

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- Y-12 cleanup includes large volumes of mercury in soil and groundwater, and decontamination and removal of 90 deteriorating contaminated facilities. Mercury continues to migrate into the Upper East Fork Poplar Creek. Cleanup will support expansion of Y-12 mission and facilities.
- Old waste burial grounds, the current landfill and the proposed new landfill are in Bear Creek Valley. Bear Creek is PCB- and mercury-impaired due to discharges from Y-12, burial grounds and the EMWMF.

KEY EXTERNAL STAKEHOLDERS:

☒ Congress ☒ Industry ☒States ☐ Tribes ☒ Media ☒ Other Federal Agency
☒ NGO ☒ Communities ☐ Other (name of stakeholder) _____

Congressional Interest: U.S. Senator Marsha Blackburn and U.S. Representative Chuck Fleischmann (3rd district). Retired U.S. Senator Lamar Alexander was on the Appropriations Committee and strongly supported ORR funding requests. [redacted]

TDEC provides oversight of CERCLA activities and other regulatory program activities.

City of Oak Ridge: The city has not supported the EMDF project, objecting to siting in an area with shallow groundwater and raising protectiveness concerns over mercury-contaminated media disposal in the EMDF.

Site-Specific Advisory Board: Established in 1995 and funded by DOE, this citizen board is a conduit between ORR and the community. DOE's EMDF proposed plan generated 199 public comments, including requests for additional information. Various NGOs are interested, including the Southern Environmental Law Center.

The ORR cleanup strategy includes partnerships between the prime cleanup contractor and local and regional subcontractors. These partnerships add to the area's economic base.

MOVING FORWARD:

- ETTP: Investigation and remediation of contaminated soils is close to completion in the main plant area. Investigation and evaluation of potential contaminated groundwater remedies is underway. [redacted]
- ORNL: Building demolition and soil cleanup is ongoing, making additional land available for ORNL mission activities.
- Y-12: Construction of the Outfall 200 Mercury Treatment Facility is ongoing. The facility is estimated to cost $170M and will address mercury releases from soil remediation and building demolition. Congress appropriated $70M in FY 2020 and $20.5M in FY 2021 for this project.

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- EMDF: Resolution of regulatory and technical issues is needed prior to issuance of a ROD. Following the ROD, a field demonstration project will address questions regarding seasonal groundwater elevations and will be used for landfill design. A draft ROD is expected in July 2021 and a final in early Calendar Year 2022.
- ORR-wide: Future decisions will address cross-complex surface water, sediment and ecological risk.

LEAD OFFICE/REGION: REGION 4	OTHER KEY OFFICES: OLEM/FFRRO, OLEM/OSRTI, OECA/FFEO